

Indian Point 3  
Nuclear Power Plant  
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Robert J. Barrett  
Site Executive Officer

February 5, 1999  
IPN-99-016

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

SUBJECT: Indian Point 3 Nuclear Power Plant  
Docket No. 50-286  
License No. DPR-64  
Licensee Event Report # 1999-001-00  
**A Condition Prohibited by Technical  
Specifications Because a Containment Isolation Valve Was Not  
Tested Adequately Due to an Inadequate Test Procedure**

Dear Sir:

The attached Licensee Event Report (LER) 1999-001-00 is hereby submitted as required by 10 CFR 50.73. This event is of the type defined in 10 CFR 50.73 (a)(2)(i)(B).

The Authority is making no new commitments in this LER.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Robert J. Barrett'.

Robert J. Barrett  
Site Executive Officer  
Indian Point 3 Nuclear Power Plant

IE22/1

cc: See next page

9902160048 990205  
PDR ADOCK 05000286  
S PDR

cc: Mr. Hubert J. Miller  
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U.S. Nuclear Regulatory Commission  
Resident Inspectors' Office  
Indian Point 3 Nuclear Power Plant

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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Indian Point 3

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05000286

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TITLE (4)

A Condition Prohibited by Technical Specifications Because a Containment Isolation Valve Was Not Tested Adequately Due to an Inadequate Test Procedure

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
01	08	1999	1999	-- 001	-- 00	02	05	1999	N/A	05000	
									N/A	05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
N		20.2201(b)			20.2203(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)	
POWER LEVEL (10)		100									
		20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)	
		20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71	
		20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER	
		20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)			

**LICENSEE CONTACT FOR THIS LER (12)**

NAME

Patric Conroy, Supervisory System Engineering

TELEPHONE NUMBER (Include Area Code)

(914) 736-8305

**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).

NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On January 8, 1999, a system engineer discovered a test inadequacy during a review of completed re-tests for a previous event (see LER 1998-009-00). During a November 1998 forced outage, in order to address inadequate containment isolation valve (CIV) testing, special tests were prepared and performed to re-test specific CIVs, including "Recirculation Pump Discharge Sample Line Isolation" valve, SP-MOV-990A. The test required venting and draining of piping upstream of the valve, but a spring loaded check valve in the upstream piping prevented proper venting. Without proper venting, the differential pressure applied across the valve was not demonstrated for determining acceptable valve leakage in accordance with Technical Specification (TS) 4.4.E, "Containment Isolation Valves." The cause of the inadequate test procedure was that a system flow diagram failed to show a check valve that was spring loaded to 75 psi. As a result, in November 1998, personnel preparing and reviewing the test instructions failed to require proper venting of piping upstream of valve SP-MOV-990A. Corrective actions included satisfactory retesting to demonstrate operability, and an extent of condition review of other surveillance leak test procedures for the presence of other similar type check valves. The review concluded there were no other instances of inadequate testing. A request for drawing change will be issued to revise the applicable system flow diagram to note that valve SI-1820 is spring loaded to a high opening pressure, and a review will be performed to determine if other critical plant drawings need to be revised to indicate check valve characteristics associated with high opening pressures. The event had no effect on public health and safety because the valve was demonstrated to be operable.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Note: The Energy Industry identification system Codes are identified within the brackets {}

**DESCRIPTION OF EVENT**

On January 8, 1999, at approximately 1403 hours, with reactor power at approximately 100 percent, a System Engineer (SE) discovered, during review of November 1998 test results, that a "Recirculation {BP} Pump Discharge Sample Line Isolation" valve {ISV} SP-MOV-990A used for containment isolation {JM} had not been properly tested in accordance with Technical Specification (TS) 4.4.E, "Containment Isolation Valves." Valve SP-MOV-990A and its redundant valve SP-MOV-990B are normally closed and de-energized valves located on a sample line connected to the discharge of the recirculation pumps {P}. The SE questioned the proper venting of the piping between inboard containment isolation valve (CIV) SP-MOV-990A and "Safety Injection System Non Reactor Coolant Pressure Boundary" check valve {V} SI-1820. The SE recalled, based on experience at a similar plant, that the check valve was spring loaded to approximately 75 psi, but the test used the piping containing this valve for venting without accounting for this type of valve. A pressure differential of at least 43 psi across valve SP-MOV-990A is required for the 10 CFR 50 Appendix J testing. Because the upstream check valve is spring loaded, nitrogen pressure could have remained trapped in the piping after the piping was drained and vented. Testing is performed with pressurized nitrogen, but without proper venting the possibility exists that gas pressure remains in the line and the differential pressure for the leak test would be less than required. System engineering concluded that testing of containment isolation valve SP-MOV-990A was not within allowable criteria required by TS 4.4.E for Type C testing per 10 CFR 50, Appendix J, and therefore operability was indeterminate.

The Operations shift manager, plant management, and the NRC were notified and briefed on the condition. The SE recorded the condition in a Deviation Event Report (DER 99-00050) and corrective action was initiated. Operations declared valve SP-MOV-990A inoperable and entered a one hour Limiting Condition for Operation (LCO) action statement for TS 3.6.A.3 at approximately 1403 hours. The redundant CIV SP-MOV-990B was determined to have been properly tested and considered operable. Operations verified valves SP-MOV-990A&B were closed and de-energized, applied a Protective Tagging Order (PTO) to prevent operation and exited the LCO action statement at approximately 1447 hours. Valve IV-1420 in the Isolation Valve Seal Water System (IVSWS) supply line was closed to prevent potential gas leakage through valve SP-MOV-990A and the TS LCO action statement 3.3.C.a for IVSW was entered. The IVSWS assures the effectiveness of CIVs to limit releases from containment {NH} by providing a water or gas seal at certain valves. Engineering developed a temporary modification to install a cap upstream of SP-MOV-990A to allow testing of valve SP-MOV-990A. A test procedure to test valve SP-MOV-990A was developed (ENG-638) and the test was satisfactorily performed on January 14, 1999. The test results verified that valve SP-MOV-990A met allowable leakage limits and was operable.

The SE discovered the test inadequacy during a post test review of completed re-tests for a previous event (see LER 1998-009-00). During a November 1998 forced outage, special tests including ENG-636 were prepared and performed in order to address inadequate CIV testing.

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Test ENG-636 included re-test of valve SP-MOV-990A and other valves. The development and review of special test ENG-636 failed to account for a check valve that was spring loaded to a high opening pressure (75 psi) based on a system flow diagram which did not distinguish the check valve type. The test preparers and reviewers assumed a typical check valve based on the system flow diagrams.

As a result of the January 8, 1999 event, information contained in this report supersedes statements made in LER 98-009 dated December 18, 1998, regarding the adequacy of test ENG-636 and previous acceptance testing for valve SP-MOV-990A.

As a result of the January 8, 1999 event, an extent of condition review was performed of the surveillance leakage tests that were previously reviewed for the November 1998 event. The review was performed to verify the adequacy of the vent/depressurization paths and whether or not any check valves exist in a required flow path. In addition, the flow paths used to supply the pressurizing media for leakage testing were also reviewed to verify their adequacy to meet test criteria. The results of the review showed the presence of check valves in several lines. The check valves identified were of the swing, non-spring loaded lift and spring loaded type. These swing and non-spring loaded lift check valve types were eliminated as potential problems based on the characteristics of these types of valves for not impeding flow. The spring loaded check valves were further assessed to determine if they would impact applicable leak testing. The assessment concluded that the spring loaded check valves identified by the review had low opening pressures and that testing met TS requirements.

**CAUSE OF EVENT**

The cause of the event (failure to adequately test valve SP-MOV-990A) was that the original test, subsequent revisions, and test procedure ENG-636, approved on November 26, 1998, failed to require proper venting of piping upstream of the valve. The test (ENG-636) did not ensure adequate upstream venting could be conducted and proper testing performed because the preparers, reviewers, and approvers of test ENG-636 did not realize the check valve (SI-1820) in the upstream piping was of a unique design with a high opening pressure (spring loaded to 75 psi). The test preparers, reviewers and approvers use system flow diagrams as a source document. The flow diagram shows a check valve but does not identify its type. Use of a 75 psi spring loaded check valve was unique and a fact not well known.

**CORRECTIVE ACTIONS**

The following corrective actions have been or will be performed under the Authority's corrective action program to address the cause of the event:

- A test procedure was developed (ENG-638) to test valve SP-MOV-990A. The test was satisfactorily performed on January 14, 1999. The test results verified that valve SP-MOV-990A met allowable leakage limits and was operable. The appropriate Appendix J Leak rate tests will be revised in accordance with the corrective action in LER 1998-009 with lessons learned from this event.

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- An extent of condition review was performed of other containment isolation valve surveillance leak test procedures. This review was to determine the adequacy of the tests in meeting the 10 CFR 50, Appendix J and in-service Test Program requirements as previously described. The review determined that there were no additional instances of inadequate testing.
- A request for drawing change will be issued to revise the applicable system flow diagram to note that valve SI-1820 is spring loaded to a high opening pressure. The request is scheduled to be issued by March 1, 1999. A review will be performed to determine if other critical plant drawings (i.e., Type A) need to be revised to indicate check valve characteristics associated with high opening pressures. The review is scheduled to be completed by April 30, 1999. Corrective actions identified from the review will be implemented in accordance with the Authority's corrective action program.

**ANALYSIS OF EVENT**

The event is reportable under 10 CFR 50.73 (a) (2) (i) (B). The licensee shall report any operation or condition prohibited by the plant's Technical Specifications. This event meets the reporting criteria because on November 27, 1998, valve SP-MOV-990A was tested by procedure ENG-636 and determined to meet leak tightness criteria, but the test contained inadequate venting requirements and failed to meet the testing requirements of TS 4.4.E. A review of previous tests determined that the original test and subsequent revisions were conducted in a similar manner. Therefore, previous testing of valve SP-MOV-990A did not properly demonstrate operability as required.

A review of the past two years of Licensee Event Reports (LER) for events that involved TS prohibited condition due to inadequate 10 CFR 50, Appendix J or IST valve leakage testing identified LER 1998-009. LER 1998-009 corrective action of re-testing failed to prevent inadequate testing of valve SP-MOV-990A because the system flow diagram used to prepare test ENG-636 did not show check valve SI-1820 as spring loaded to a high opening pressure (75 psi) and thereby allow adequate venting.

**SAFETY SIGNIFICANCE**

This event had no effect on the health and safety of the public. There were no actual safety consequences for the event because the valve was subsequently properly re-tested and shown to be within allowable leakage criteria required by TS 4.4.E for Type C testing per 10 CFR 50, Appendix J, and therefore operable. In addition, there were no events or conditions requiring containment isolation while the valve was considered inoperable.

There were no potential safety consequences of the event under postulated accident conditions. Containment integrity would have been maintained under design basis accident (DBA) conditions with an assumed single failure since the valve SP-MOV-990A was verified to meet leak tightness criteria and the redundant valve SP-MOV-990B was operable.